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ABSTRACT

Existing theory suggests that women in the premenstrual and menstrual phases of their hormonal cycle would select and enjoy nonarousing television programs, sucy as nonhostile comedy and game shows, and would avoid action drama and hostile and arousing programs. To test this theory, female undergraduates from telecommunications and journalism Courses at Indiana University (n=105) were given a list of programs from which to select (including dramas, game shows, and humorous programming), shown segments from a variety of television programs and asked to indicate their enjoyment of each, and asked also to provide data on their position in the menstrual cycle. It was found that the women selected more drama than any other type of program and that the selection of comedy was related to position in a woman's cycle, with the selection of both nonhostile and hostile comedy varying as a function of cycle position. Selection of violent and nonviolent programming was submitted to a one-way analysis of variance revealing that the selection of nonviolent programs is not significantly related to a woman's menstrual cycle position, but that women in the critical (premenstrual and menstrual) cycle phases tend to select more violent programming for viewing than women in other phases of the cycle. However, the types of violent programing preferred during critical cycle phases were oriented toward verbal hostility rather than physical violence. These findings in part support the theory that women select content that will help them cope with negative moods that vary as a function of the menstrual cycle. (CMB)

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THE INFLUENCE OF HORMONAL FLUCTUATIONS ON WOMENS' SELECTION AND ENJOYMENT OF TELEVISION PROGRAMS

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CS 208 427

The Influence of Hormonal Fluctuations on Womens'
Selection and Enjoyment of Television Programs

This study is concerned with the influence of hormonal fluctuations and mood on a women's preference for certain types of television content and her enjoyment of that content. Existing theory suggests such a link exists. It is widely known that the stability of sex hormones differs. Testosterone levels in both males and females tend to remain relatively stable (Zillmann, 1984). Female hormones, however, are characterized by a considerable amount of flux. Low levels of all sex hormones are continuously produced during the reproductive part of a woman's life; however, in addition to these base levels, there are fluctuations which define the women's menstrual cycle (The Boston Women's Health Book Collective, 1976). It is these fluctuations which have been studied as influences on a woman's affective states and behaviors, and additional evidence suggests a link between affective states and selective exposure.

The finding that women report mood changes which are associated with hormonal fluctuations is robust. Melges and Hamburg (1976), for example, found that relatively high levels of estrogen are associated with a sense of well-being and alertness. In contrast, during the premenstrual phase when both estrogen and progesterone levels dramatically drop, women reported feeling more irritability, anxiety, and pain. Similarly, other researchers have found increased anxiety and depression reported during the premenstrual and menstrual phases compared to other cycle phases (cf, Moos, Kopell, Melges, Yalom, Lunde, Clayton, and Hamburg, 1969; Marinari, Leshner, and Doyle, 1976).

The evidence seems clear, therefore, that hormonal changes can influence a woman's mood. The question which has not been fully resolved, however, is why this occurs. Hamburg (1966) explains the link oetween hormonal changes and mood as a function of the anesthetic properties of hormones, particularly progesterone. He states that progesterone acts like an anesthetic and that when progesterone levels drop rapidly in the premenstrual phase (see figure 1), women experience withdrawal symptons, characterized by increased irritability, aggressiveness, and sensitivity to pain. The anesthetic effect of progresterone is well documented, and estrogen has anesthetic properties as well (cf, Selye, 1941). This explanation, therefore, seems quite plausable.

The fact that the absence of anesthetic effects during the menstrual and premenstrual phases of a woman's cycle has been linked with dysphoric moods suggests that a woman's viewing habits may vary as a function of her cycle position. Zillman, Hezel & Medoff (1980), for example, suggest that viewers select television programs to help regulate their emotional states, particularly in an effort to alleviate dysphoric experiences. Exposure to content which is neither agressive nor arousing (such as nonhostile and nonarousing humor, game shows, and educational programs) has been shown to have beneficial effects for annoyed viewers (Zillmann, 1977; Bryant and Zillmann, 1977; Zillmann and Johnson, 1973). Baron's studies, for example, found that exposure to nonhostile and nonarousing humor reduces retaliatory behavior in provoked subjects.

Zillmann and Spolsky (1977) suggest that these findings can be explained as annoyance dissipation. When subjects are provoked, they are in hostile or aroused states, and exposure to nonarousing entertainment allows the state to

dissipate. Consistent with this reasoning, exposure to arousing or aggressive fare has been found to maintain arousal levels and to prevent dissipation (Tannebaum and Zillmann, 1975; Zillmann and Johnson, 1973). In addition, the evidence suggests that exposure to such programs as situation comedies and game shows would assist the viewer in alleviating negative affective states.

Zillmann, Hezel, and Medoff (1980) take this notion a step further, noting that this effect is only likely to occur if people who experience negative states are also likely to select nonarousing programs for viewing. Zillmann, et al. (1980) suggest that people learn to do this over time through operant learning. They state that viewers learn to associate relief from negative affect while viewing such programs and eventually acquire a preference for pleasant and absorbing entertainment when experiencing dysphoric states. The results of their study showed that subjects in negative affective states did tend to select nonarousing programs (game shows) for viewing. These subject, however, did not show a preference for comedy as predicted by the theory. The authors suggest this may have been due to the fact that many of the comedy programs offered contained hostile or put-down humor in which characters were frequently teased and humiliated, making dissipation unlikely. Medoff (1979) found results which support this interpretation. He found that provoked subjects selected hostile comedy less than controls and that this tendency was most pronounced in provoked women.

These findings suggest that a woman's selective exposure is influenced by hormonal fluctuations. During the critical cycle phases (premenstrual and menstrual), women are more likely to experience negative states, such as an

increase in irritability, anxiety, and sensitivity to pain. According to dissipation theory, these women would select programs such as situation comedies and game shows for viewing -- programs which facilitate dissipation of negative states. Consistent with this reasoning, there are two central hypotheses addressed in this study, one concerning the types of television programs selected during the critical phases of a woman's menstrual cycle and the other concerning her enjoyment of various programs. Women in the premenstrual and menstrual phases of their cycle are expected to select nonarousing television programs (such as nonhostile comedy and game shows) and to avoid action drama, hostile, and arousing programs. In addition, their affective responses to these different types of television programs is expected to be consistent with their selective exposure preferences. Women in the premenstrual and menstrual phases of their cycle are expected to enjoy nonarousing television programs more than the available alternatives.

Methods

Subjects

All participants in the study (N=135) were female undergraduate students recruited from Telecommunications and Journalism courses at Indiana University. The study was administered in large lecture halls on three separate dates: December 9, 1982; April 13, 1983; and April 15, 1983. Thirty of these women were eliminated from the sample in analysis, because their hormonal patterns would vary significantly from those of other women: 29 were currently taking oral contraceptives, and one reported she was pregnant.

Procedure

Overview. Subjects participated in a multi-part study on each of the testing dates. In one part of the study, women were given a list of programs and asked to select those they would like to watch that same evening. In the other part of the study, women were shown segments from a variety of television programming and asked to indicate their enjoyment of each. Data were also collected to assess the woman's position in her menstrual cycle.

Assessment of selective exposure. The subjects were asked to imagine they had that evening free and had decided to spend three hours watching television. They were given a variety of 30- and 60-minute programs to select from, including drama, game shows, and humorous programming. Each of the 27 programs they could select to view was accompanied by a brief description of the program episode, similar to those found in TV Guide. Unlike conventional television, however, the subjects were told that their television was interactive and they were able not only to select the programs they wanted to watch, but also the time they wanted to watch each program. The subjects then completed a viewing schedule, indicating which programs they would select if they could watch television the same evening they participated in the study. The viewing schedule was arranged in half-hour blocks, form 7 p.m. to 10 p.m.

The program selected for viewing in each half hour block was then coded and classified according to the type of program: comedy, game show, or drama. For each subject, therefore, it was possible to classify program selection by the type of program selected as well as the amount of time subjects planned to view each program type.

Program Characteristics. Since Medoff (1979) found that subjects respond differently to hostile and nonhostile comedy, it was felt necessary to identify program characteristics in oder to examine their effect on program selection. Fourteen undergraduate women from a telecommunications course were asked to rate the program characteristics. They were asked to read the program descriptions given in the study and to use this information along with their own experience watching the programs to indicate whether or not they felt the program would contain hostile content and if so, what type of hostility they would expect (verbal or physical). In addition, they were asked to indicate whether or not they felt there would be a victim in the program and if so, the sex of the victim.

Based on a binomial distribution, the critical value for identifying a program as containing hostile or nonhostile content and victimization based on the opinions of 14 judges is 11 ($p<.03$). The contingent characteristics -- the type of hostility and the sex of the victim -- were identified by majority opinion.

This procedure identified eight programs as hostile. Of these eight, five situation comedies ("M*A*S*H," "The Jefferson," "All in the Family," "Alice," abd "Three's Company") were categorized as verbal hostility; the three action dramas ("Hart-to-Hart," "Hawaii 5-0," and "Cagney and Lacey") were categorized as physical hostility. These same programs (with the exception of "Hart-to-Hart") were also identified as programs with victimization. Only two of the programs (M*A*S*H" and "All in the Family") were identified as having male victims; the remainder were thought to have female victims. In addition, 8

programs were identified as containing no hostility ("Happy Days," Leave it to Beaver," and all six game shows: "$20,000 Pyramid," "Family Feud," "Password," "Hollywood Squares," "Tic Tac Dough," and "Wheel of Fortune"). In the analysis, therefore, it was possible to look at selective exposure as a function of both the type of program (comedy, game show, and drama) as well as program characteristics (hostility and victimization).

Assessment of program enjoyment. The subjects were shown five segments from five different television programs, each representing a different type of content: nonhostile humor, game show, action drama, crime drama, and hostile humor. The program segment representing nonhostile humor was from Three's Company and showed a scene where Jack had become accidently intoxicated and finds himself at the police station. The nature of the humor in this scene is slapstick, and the episode is free of hostile humor. The game show segment shown is from Family Feud and shows Richard Dawson and the two feuding families playing the game. The action drama is a segment form Bring 'em Back Alive and depicts the main character in conflict in a jungle-like setting. The crime drama is from Cagney and Lacey. The scene opens in a small room where a woman is being held captive by a male criminal who treats her quite roughly. The scene ends when the police finally break into the room and Cagney and Lacey are able to save the woman, despite the fact that the criminal had been holding a knife to her throat. The final program type, hostile humor, is represented by a segment of the Jeffersons in which George is engaged in verbal battle with the maid. The scene ends with George firing the maid, who, incidently, held her own in the verbal bant[illegible]

Immediately after viewing each of these segments, the subjects were asked to indicate how much they enjoyed each segment by circling a number on a 10-point scale.

Position in Cycle. To determine the women's position in their menstrual cycle, each subject was given a calendar of four months, including the month of the study and the preceeding three months. The women who filled out the questionnaire in December, for example, were given a calendar which included the months of September, October, November, and December. The women were then asked to circle the date on the calendar when their last period began and then the date when the period before that began. (All dates were converted to day in year for purposes of analysis. For example, February 1 was converted to 32.) With this information, it was possible to compute both the woman's day in her cycle at the time of the test (the number of days which had elapsed since her most recent onset at the time of the study) and the length of the woman's cycle (the number of days from the onset of one menses to the onset of the next).

Each woman's position in her cycle was then normalized on a 28-day cycle. This was done by multiplying the woman's day in her cycle at the time of the study by 28 then dividing by the length of her cycle, yeilding a normalized estimate of each woman's position in her cycle at the time of the study. This information was used to assign each woman to cycle phase positions which are associated with varying levels of progesterone and estrogen.

INSERT FIGURE 1 HERE

FIGURE 1

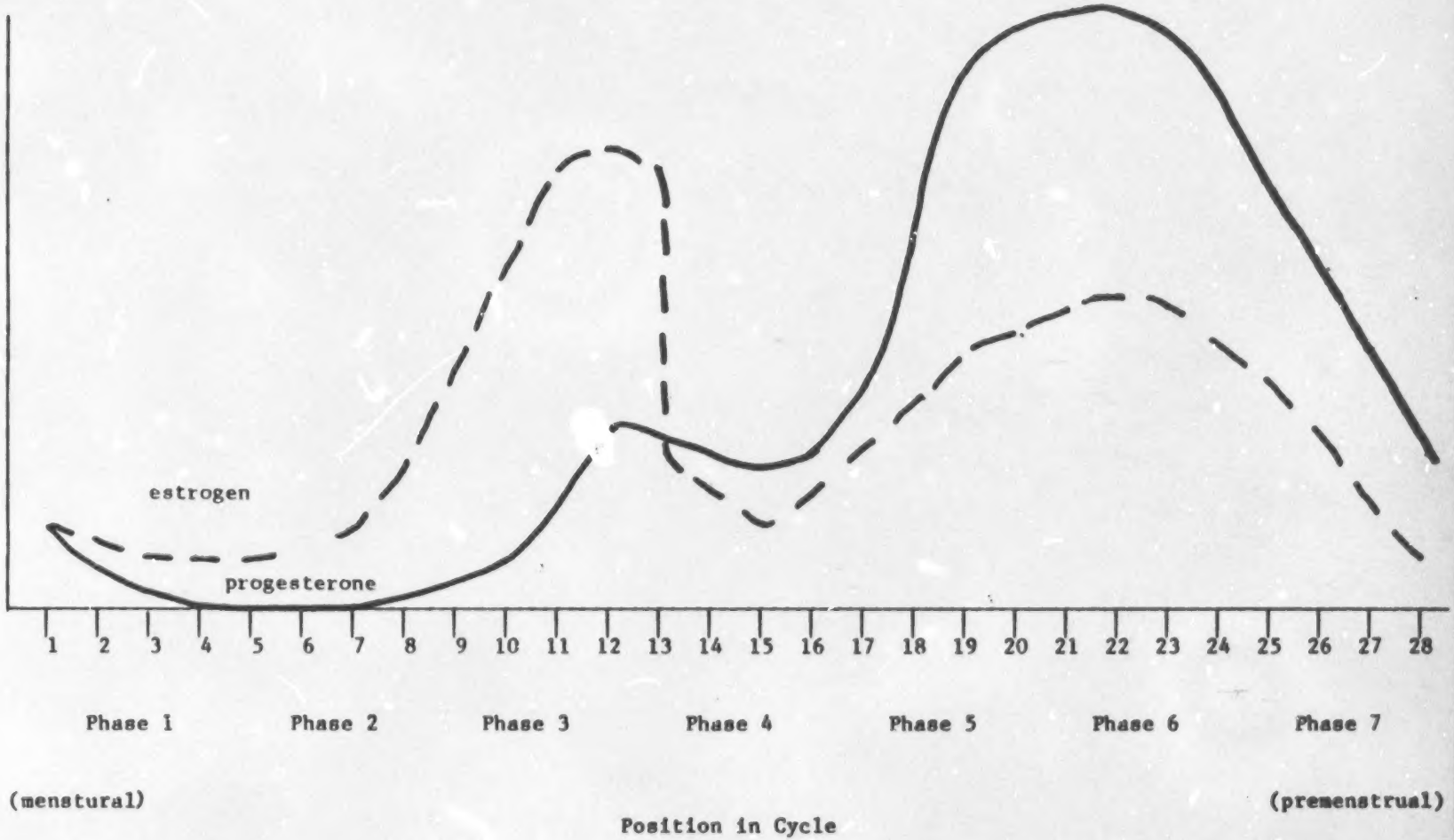

Figure 1. Hormone Levels by Menstrual Cycle Phase

Women who were in the first four days of their cycle were assigned to cycle phase 1 (N=13); women in days 5-8 were assigned to phase 2 (N=11); women in days 9-12 were assigned to phase 3 (N=11); women in days 13-16 were assigned to phase 4 (N=19); women in days 17-20 were assigned to phase 5 (N=15); women in days 21-24 were assigned to phase 6 (N=14); and women in days 25-28 were assigned to phase 7 (N=6). These cycle phases were used in the analysis to operationalize the independent variable -- the woman's position in her cycle and to approximate hormonal levels.

It should be noted here that eight additional women were eliminated from the analysis based on the value of this normalized variable. For these women, the normalized value far exceeded 28, indicating that they were "late." That is, at the time of the study, their day in cycle well exceeded their cycle length. Since it was clear that onset was long overdue for these women, they were eliminated from the sample. We suspect these women may have been pregnant or, at least, that their hormonal patterns would vary significantly from other women in the study.

Findings

Selective Exposure

Of the three types of programs available for selection (comedy, game, and drama), the women in the sample selected more drama for viewing than any other type of program. The mean number of units drama was selected for viewing is

3.16 (each unit represents a 30-minute viewing block); the mean for comedy was 2.62; and the mean for game shows is .13.

One-way analysis of variance showed, however, that selection of comedy was significantly related to a woman's position in her cycle, and the relationship is quadratic ($p<.05$). The mean number of units comedy was selected in cycle position 1 is 2.92; in cycle position 2, 2.36; in cycle position 3, 2.00; in cycle position 4, 2.21; in cycle position 5, 2.80; in cycle position 6, 3.07; and in cycle position 7, 3.33.

INSERT FIGURE 2 HERE

In addition, it was found that selection of both nonhostile and hostile comedy varies as a function of cycle position. One-way analysis of variance showed significant relationships between selection of hostile comedy and position in cycle ($p<.05$) and selection of nonhostile comedy and cycle position ($p<.05$). Both relationships are quadratic, and it is interesting to note that during the critical cycle phases (premenstrual and menstrual), selection of both types of comedy is greater than at any other phase of the cycle.

INSERT FIGURE 3 HERE

Selection of comedy -- regardless of whether the comedy is hostile or nonhostile -- is a function of the woman's cycle position. As stated earlier,

FIGURE 2

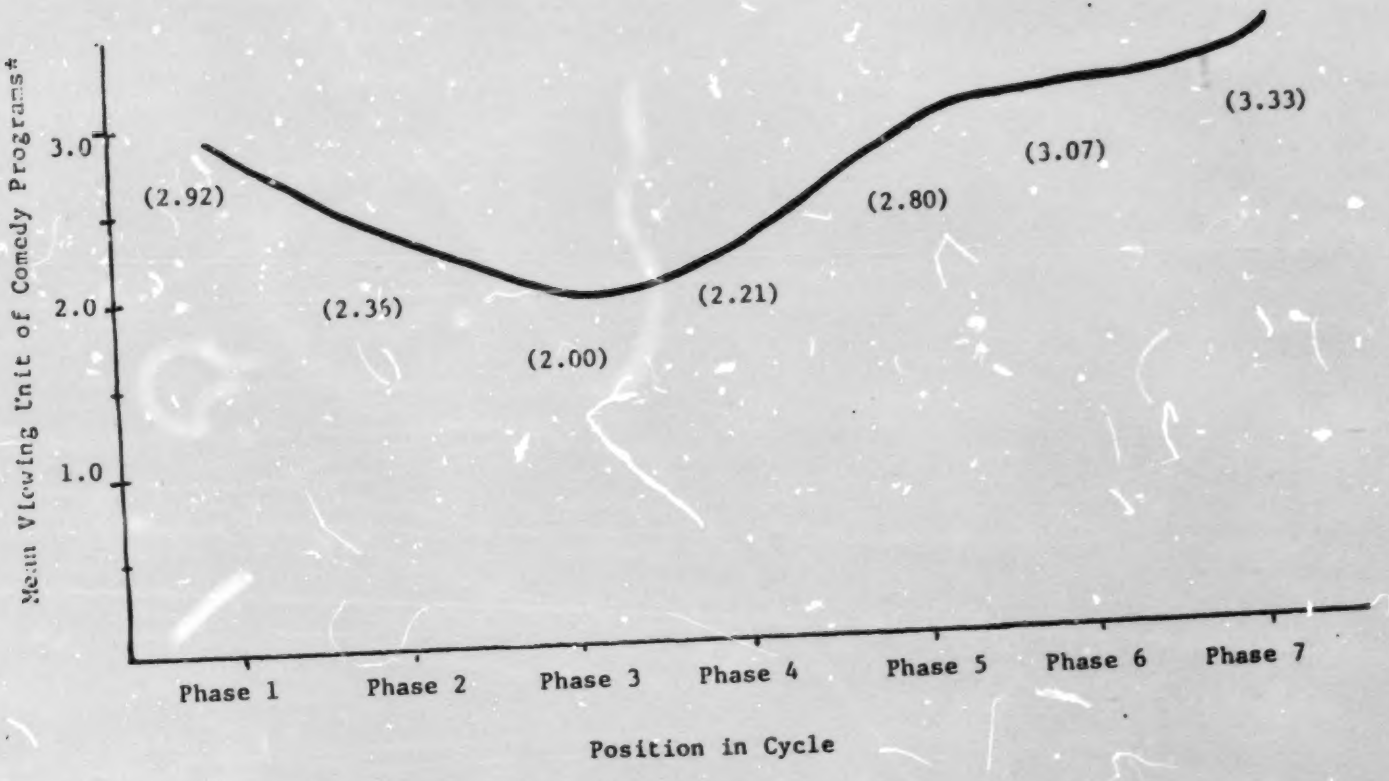

Figure 2. Selection of Comedy by Position in Cycle.

16

*each unit represents 30 minutes

FIGURE 3

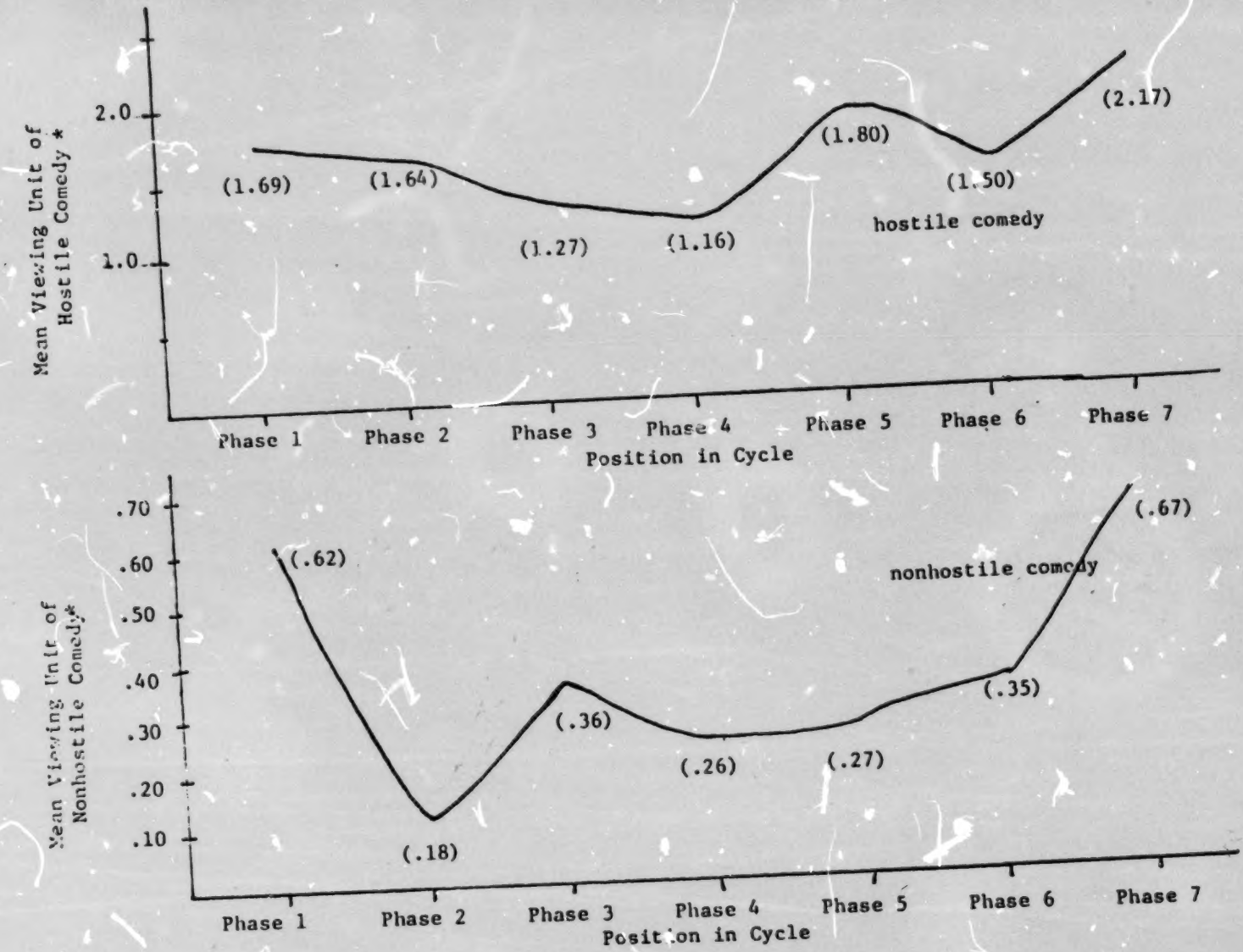

Figure 3. Selection of Hostile and Nonhostile Comedy by Position in Cycle

*Each unit represents 30 minutes.

Zillmann and Sapolsky (1977) suggest that this may be due to the fact that situation commedies aid the viewer in alleviating negative affective states. According to their theory, however, dissipation is expected to occur only if the program is nonarousing; exposure to arousing or aggressive programming is expected to inhibit dissipation and maintain arousal levels. In order to further test this hypothesis, selection of violent and nonviolent programming was submitted to one-way analysis of variance to test the relationship of these variable to a woman's position in her cycle. Results showed that selection of nonviolent programming is not significantly related to a women's cycle position. The relationship between selection of violent programming and cycle position is significant and quadratic ($p<.05$). The relationship, however, is not as hypothesized: women in the critical phases of her cycle tend to select more violent programming for viewing than women in other phases of the cycle.

INSERT FIGURE 4 HERE

One-way analysis of variance showed, however, that not all types of violent program content are prefered during the critical phases. When selection of the type of violent content was examined, it was found that selection of physically hostile content is not related to position in cycle and that there is a significant quadratic relationship between selection of verbal hostility and cycle position ($p<.03$). The mean number of units selected for viewing content which is verbally hostile in phase 1 was 1.69; in phase 2, 1.64; in phase 3, 1.27; in

FIGURE 4

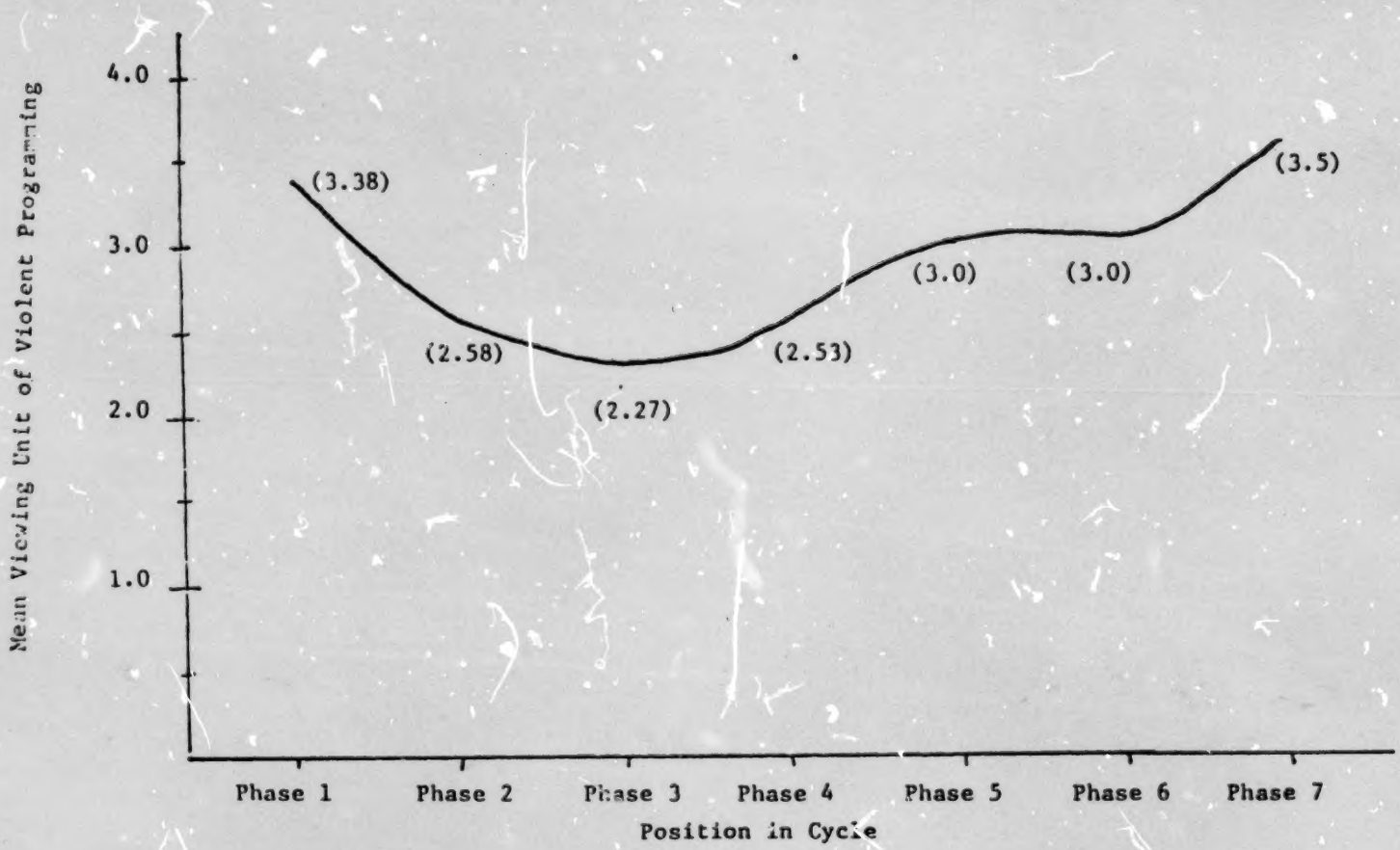

Figure 4. Selection of Violent Programming by Position in Cycle.

*Each unit represents 30 minutes.

phase 4, 1.16; in phase 5, 1.80; in phase 6, 1.50; and in phase 7, 2.17. Again, the trend here is for women to prefer viewing verbal hostile content more in the critical phases of their cycles than in other phases.

Program Enjoyment

Enjoyment of the five television program types viewed by the subjects was submitted to one-way analysis of variance to test the relationship of enjoyment of the program type by a woman's cycle position. Enjoyment of the program segments (nonhostile, humor, game show, action drama, crime crama, and hostile humor) was not significantly related to a woman's position in her cycle.

Discussion

This study shows that a woman's selective exposure to television programs is influenced by hormonal fluctuations associated with her menstrual cycle. It is not clear, however, that this relationship can be explained by Zillmann and Sapolsky's (1977) theory of annoyance dissipation.

According to this theory, people learn to select nonarousing programming for viewing when they are in a dysphoric state, because viewing this content allows the state to dissipate. Arousing or aggressive programming, on the other hand, inhibits dissipation. Findings from previous research also suggest that comedy *per se* does not facilitate dissipation; if the humor is hostile, it is not selected for viewing, presumably because hostile humor is arousing and inhibits dissipation (Medoff, 1977; Zillmann, Hezel, and Medoff, 1980).

Results of the present study provide partial support of this theory. Women in the critical phases of their cycle -- the premenstrual and menstrual phases

associ ted with negative mood states -- did show a preference for comedy. Selection of more arousing content (action dramas), however, was not related to cycle phase. Although women do not tend to avoid arousing content, they do show a greater preference for comedy during the critical cycle phases. These findings suggest that women do, indeed, select content which will help them cope with negative moods which vary as a function of the menstrual cycle.

It is not clear, however, that this content need be nonhostile to be functional. Women in the critical phases of their cycles selected more nonhostile AND hostile comedy than women in other cycle phases. In addition, these women selected violent programs more than women in other phases of the cycle. It seems, therefore, that women in the critical cycle phases prefer not only comedy, but hostile comedy and violent content as well. At first glance, this finding is difficult to interpret if one assumes that program selection is guided by annoyance dissipation goals. Perhaps, in the proper context, hostility and violence do not <u>per se</u> inhibit annoyance dissipation. As noted earlier, the 8 programs identified as hostile were 5 situation comedies (identified as verbal hostility) and 3 action dramas (identified as physical hostility). Of these programs, only selection of verbal hostility -- the situation comedies -- was related to position in cycle. Since all programs identified as containing verbal hostility are also situation comedies, it's not clear which criteria guided program selection. If selection was based on humor, then the results of the study support an annoyance dissipation interpretation. If selection was based on verbal hostility, then such an interpretation is unlikely. Future research should address this question by offering selection of

the same program with and without hostile or violent content for a variety of program types.

The finding that enjoyment of program types did not vary as a function of cycle position is not (given hindsight) surprising. The fact that a particular program may function to regulate a negative mood does not necessarily imply that a viewer will enjoy the program more than if the initial mood was positive. The null findings concerning program enjoyment, therfore, are unrelated to annoyance dissipation and are irrelevant to validation of this theory. Future analysis will focus on the more interesting question of whether program enjoyment is related to program selection and whether this relationship varies as a function of cycle position.

Although the results of this study do not decisively answer the question of whether program selection is based on a drive to dissipate negative states, it is clear that selective exposure is influenced by a woman's position in her menstrual cycle. In the premenstrual and menstrual cycle phases which are defined by rapid and dramatic drops in progesterone and estrogen levels and may be associated with mood changes due to anesthetic withdrawal, women selectively expose themselves to more comedy than in other cycle phases. The fact that all comedy was selected during these critical phases -- both hostile and nonhostile comedy -- is not predicted by annoyance dissipation theory. Future research is needed to test this theoretical linkage. In addition to providing more stringent controls over the types of programming offered for viewing and the nature of that programming, such a study should also monitor the woman's arousal levels before, during, and after viewing a variety of programming to verify that

content selected for viewing does, in fact, alleviate dysphoric states. The fact that the women in this study did not equally prefer all types of nonarousing content (game shows, for example) suggests that program selection guided by a desire to alleviate negative states is based not only on arousal reactions to aggressive content, but also upon the nature of the content itself. This would explain why women in the critical cycle phases selected both hostile and nonhostile comedy. Perhaps it is not the arousal level alone which is important, but also the context in which arousing content is presented.

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